

Lead Center Review

High Performance Computing & Communications



Learning Technologies Project (LTP)

Mark León, Project Manager

June, 2000

NASA Ames Research Center

Project Overview:

<http://learn.arc.nasa.gov>



Vision

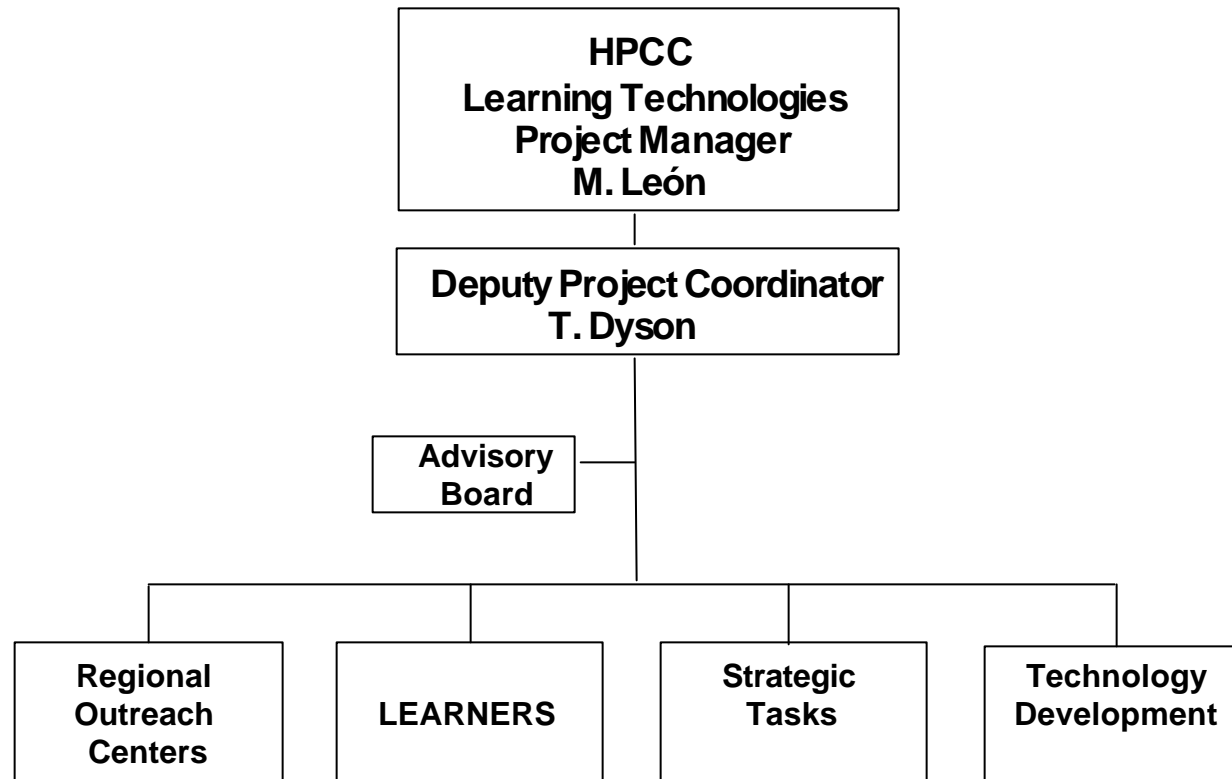
LTP promotes effective use of NASA information and knowledge for education and life long learning.

Mission

To Lead NASA in educational technology.



Project Office WBS 1.0



Project Overview: Regional Outreach Centers



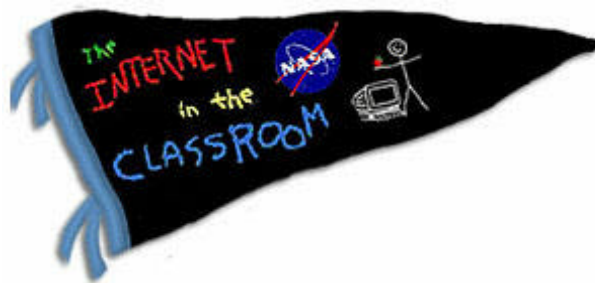
*Live,
Interactive Science!*

- **NASA's Learning Technologies Channel**

- NASA Broadcasts have been received at over 100 countries world wide.
- Live multimedia events over the internet from 25Kbps to 1Mbps.
- Events are carried on audio over the internet from 5Kbps to 19.2Kbps.
- Experts answer questions submitted by chat windows.
- Hundreds of NASA lectures archived with video and audio on demand.
- <http://quest.arc.nasa.gov/ltp>



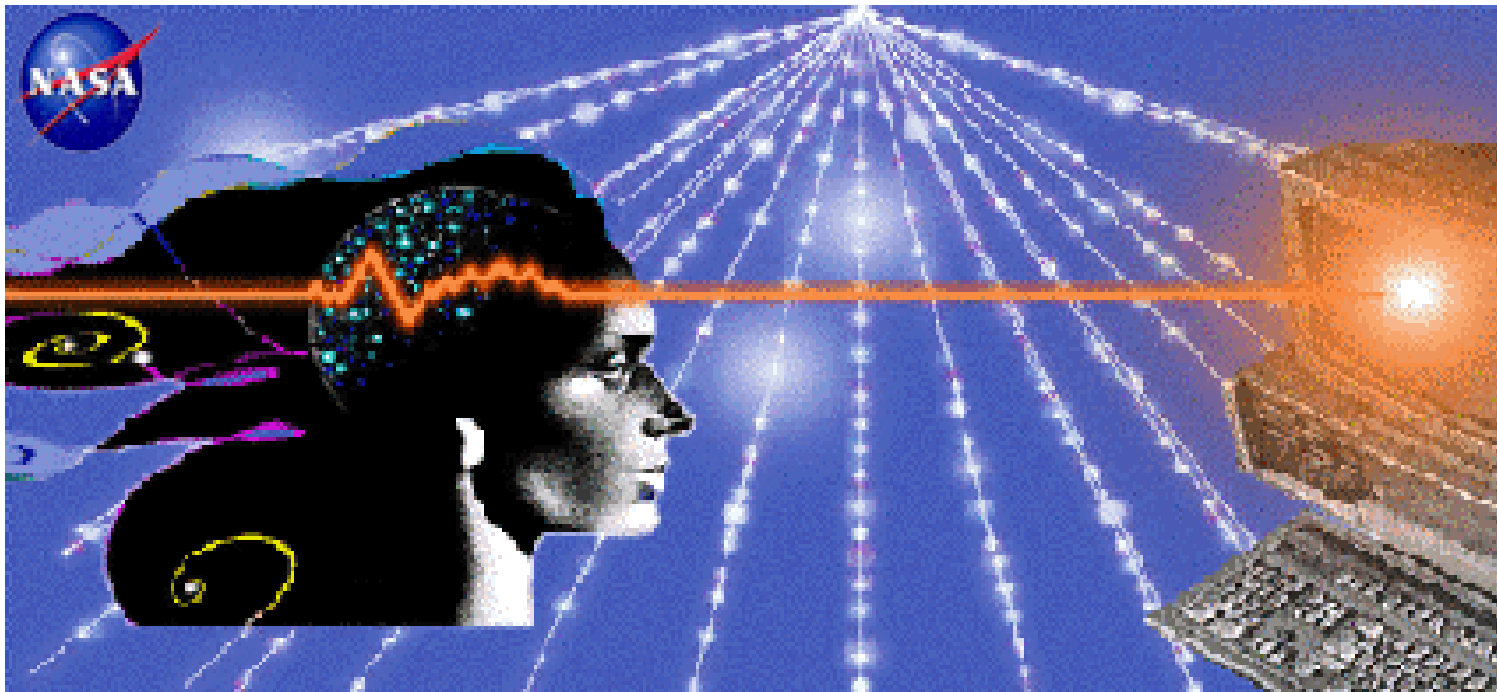
Regional Outreach Centers



QUEST



Regional Outreach Centers



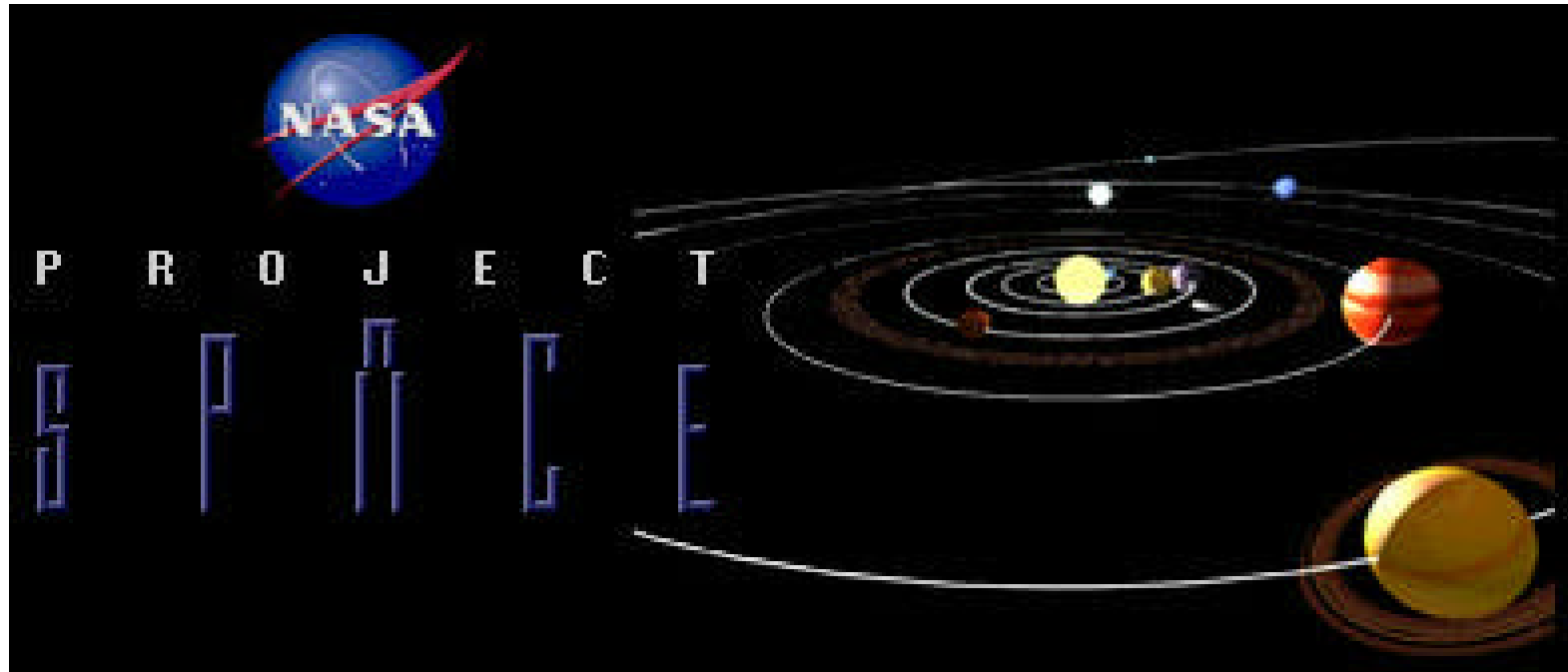
**The NASA Johnson Space Center
Learning Technologies Project
Internet Tools for K-12 Teachers and
Students**



Regional Outreach Centers



Jet Propulsion Laboratory (JPL)



Project SPACE
(Sun, Planets, Asteroids, Comets,
Exploration) is an educational
technology program of NASA's Jet
Propulsion Laboratory

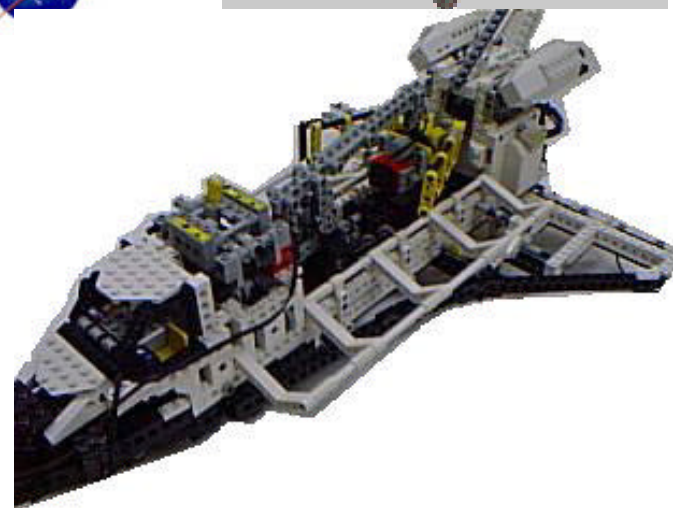
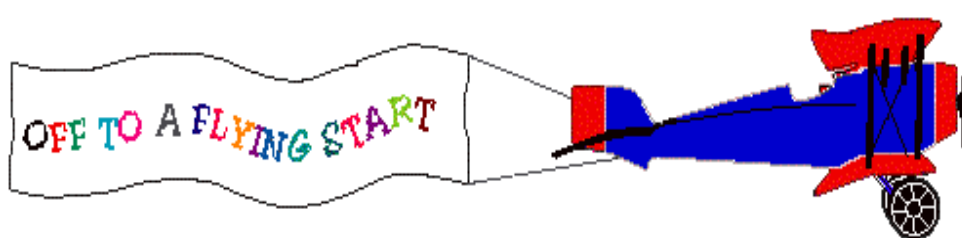


Regional Outreach Centers



NASA Langley's Learning Technologies Project!

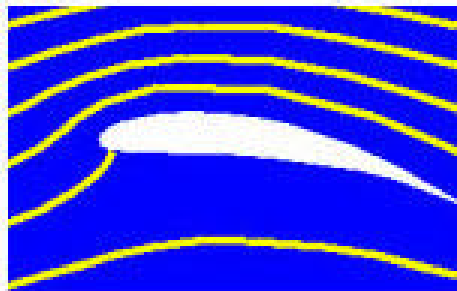
Summer Computer Workshop Classroom Activities



Regional Outreach Centers



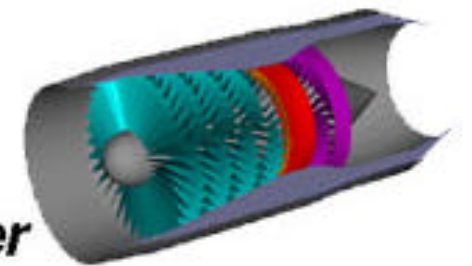
FOILSIM



Aeronautical Classroom Activities



Basic Aerodynamics Software



Computer Workshop
Instructional Material



Glenn Research Center



BEGINNER'S GUIDE TO PROPULSION



Regional Outreach Centers

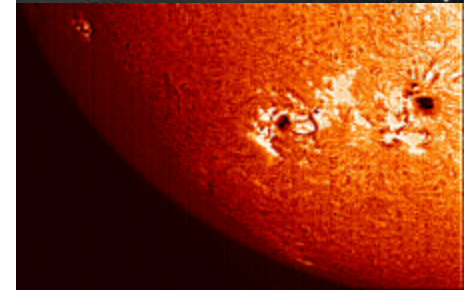
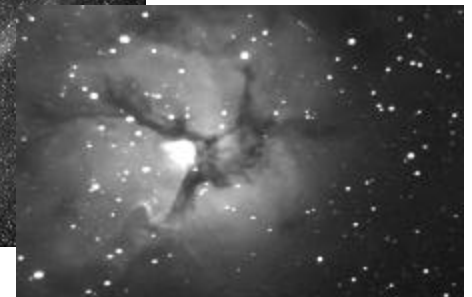
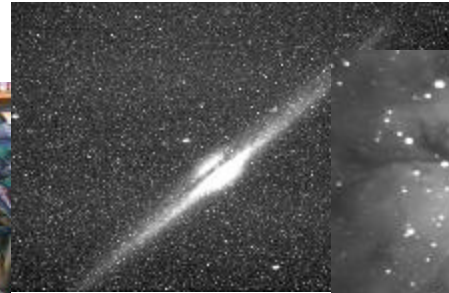


- LTP MSFC Regional Outreach Center
 - Earth Science Activities
- LTP SSC Regional Outreach Center
 - Curriculum Development
- LTP KSC Regional Outreach Center
 - Online Mentoring
- LTP DFRC Regional Outreach Center
 - Web Enhanced Learning Environments
- LTP Project Office
 - Interactive CD's

Regional Outreach Centers



TELESCOPES IN EDUCATION



- **Telescopes in Education**

- Facilities under way in Japan, UK and Australia.
- Currently 24" & 14" telescopes located on Mt. Wilson, California are available to students over the internet.
- New 14" NASA telescope installation underway at Las Campanas, Chile.
- Students discovered variable stars and worked with NASA scientists to recalculate the orbit of Pluto through stellar occultation.
- <http://tie.jpl.nasa.gov/tie/index.html>

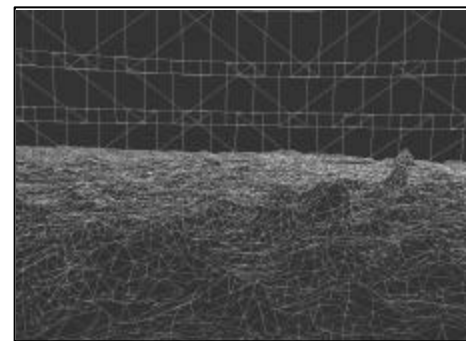
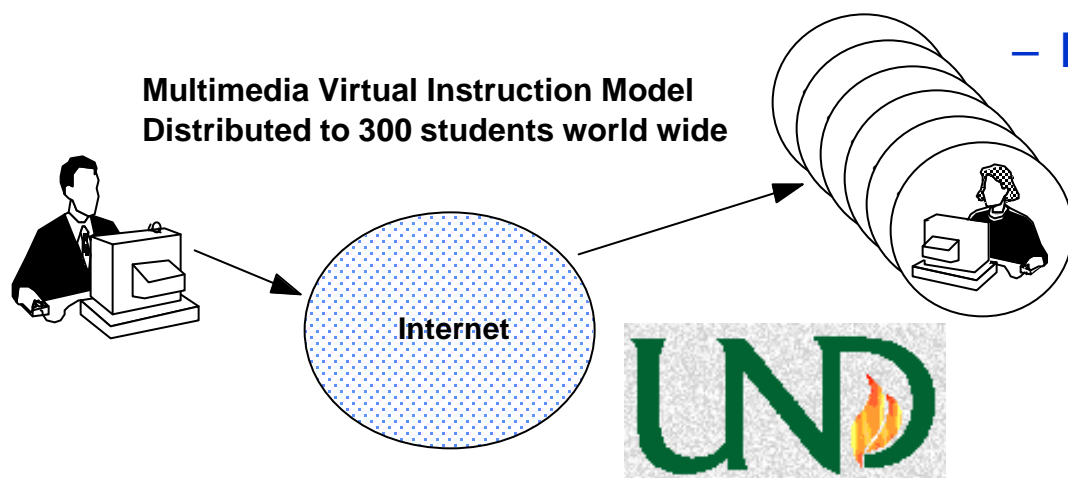


Regional Outreach Centers



• Courses On-Line

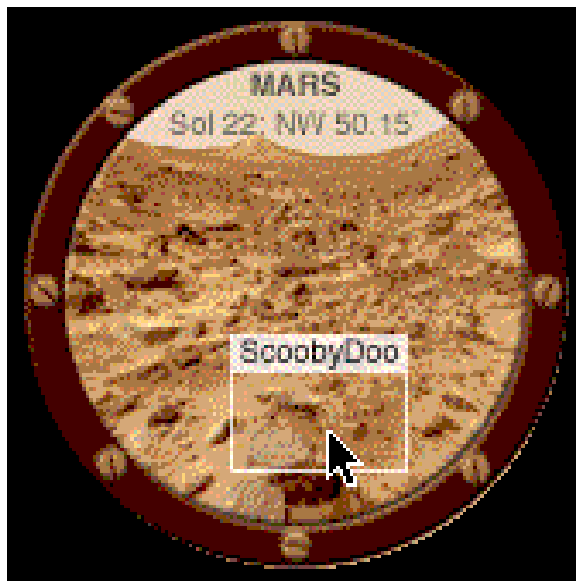
- NASA Telerobotics Courses available over the internet for College Credit.
- Live Streaming Video accompanied with questions answered by teachers.
- Finals and Labs given over the internet
- Participation from Japan, Brazil, England, & Russia
- <http://quest.arc.nasa.gov/courses/>



LEARNERS



- **Eventscope** to deploy Mars Rover to Antarctica for telepresence operation by students.
- **SENSORS** will allow students to build and teleoperate robots from Legos.



LEARNERS



- LTP LEARNERS: SENSORS
 - Earth Science Activities



- Signals of Spring
 - Earth Sciences Activities



- Space Mysteries
 - Space Science Activities

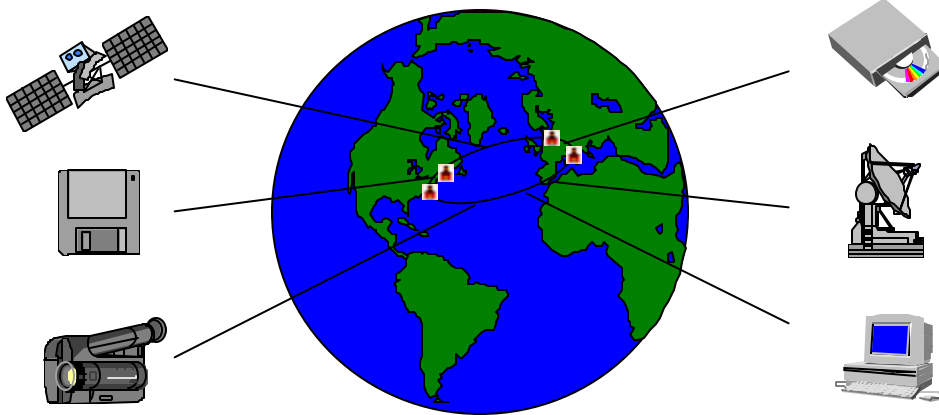


- LTP LEARNERS: Why?Files
 - Enterprise Activities



- LTP Learners: America's Farm
 - Satellite Imagery and Education

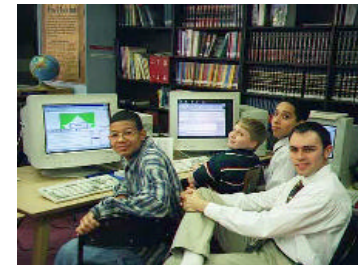
Strategic Tasks



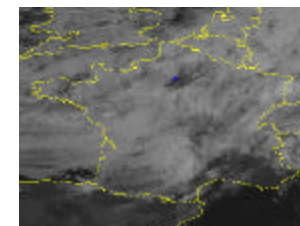
DC



Paris

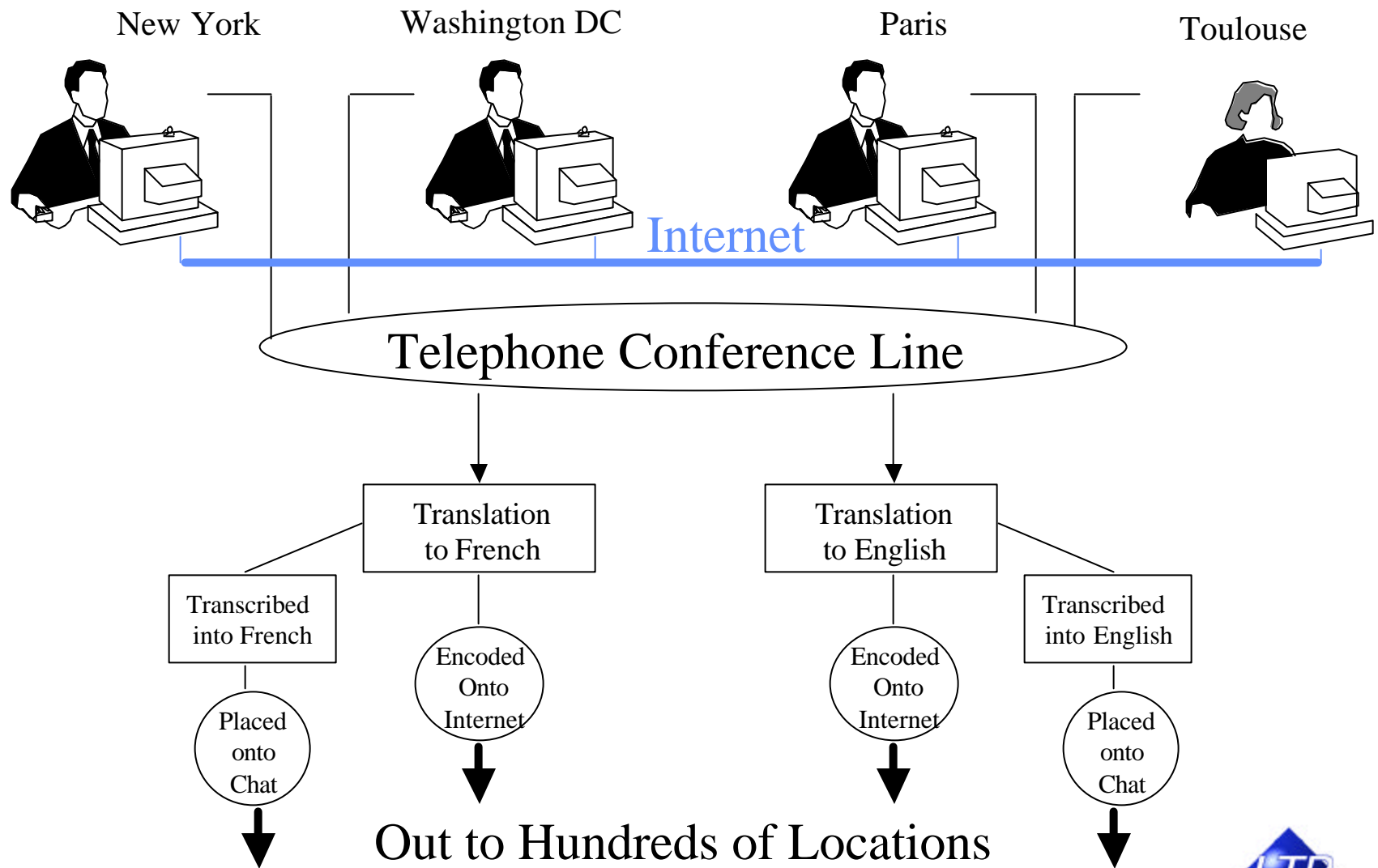


**New
York**

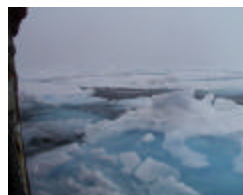
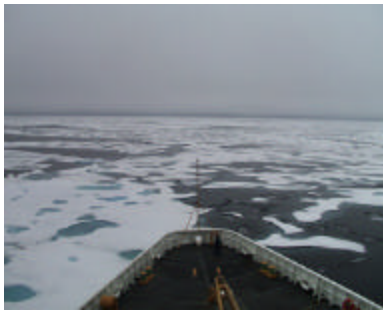
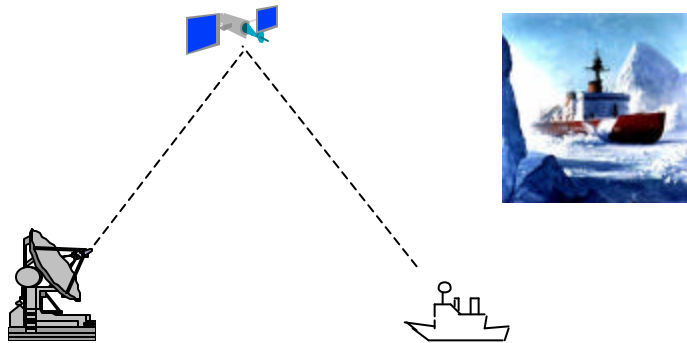


- **NASA and the French Space Agency (CNES) special events:**
 - Live Audio in French or English Channels from live translation
 - Web pages and Chat windows in French & English
 - Live transcription onto chat windows in French and English
 - <http://quest.arc.nasa.gov/ltc/french>

Technology Development



Technology Development

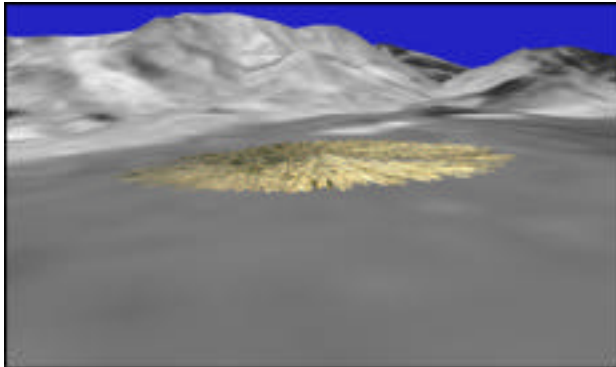


- **Remote Educational Broadcasts and Telepresence Arctic Ocean Communications**

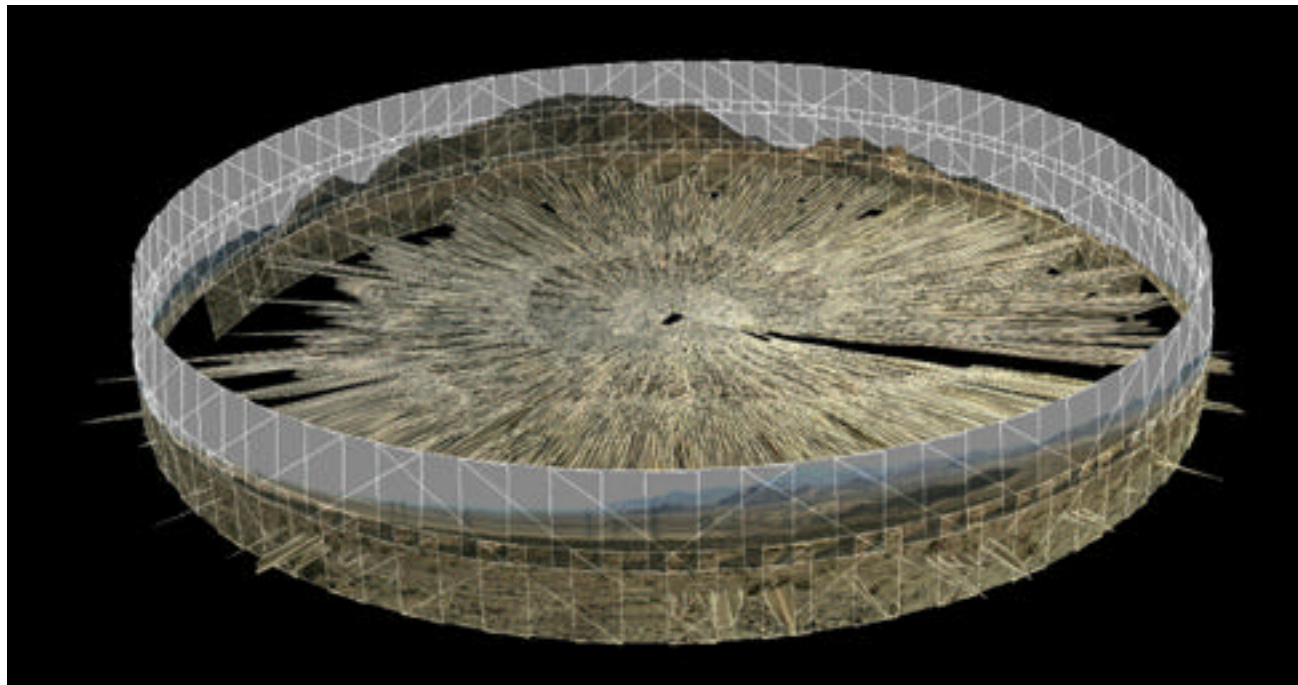
- LTP executes live events from remote locations for students worldwide utilizing innovative technology.
- INMARSAT satellite links at sea and in remote parts of the world bring the worlds finest research to students online.
- <http://quest.arc.nasa.gov/arctic>



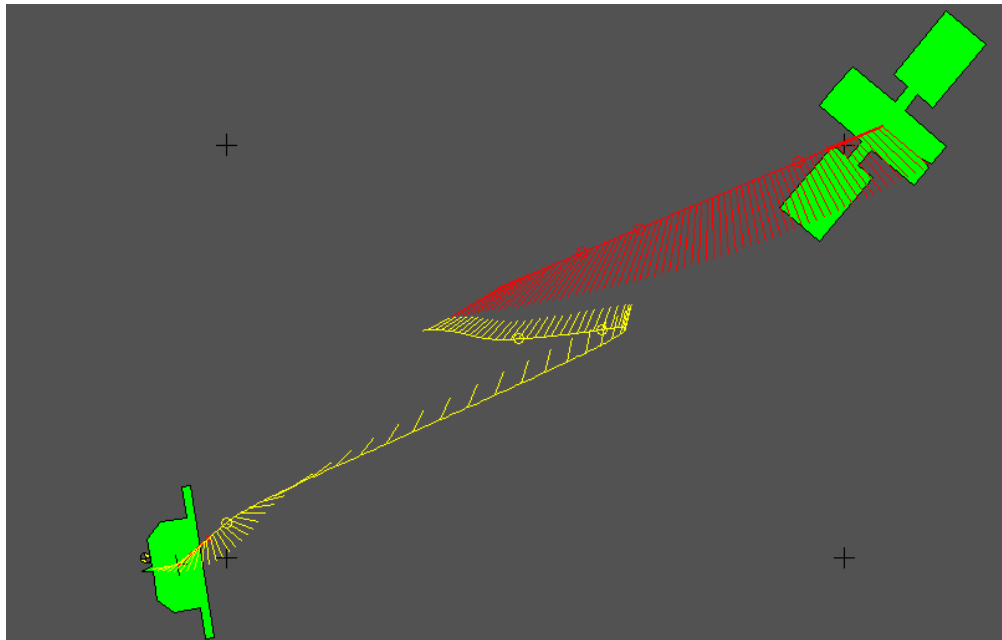
Technology Development



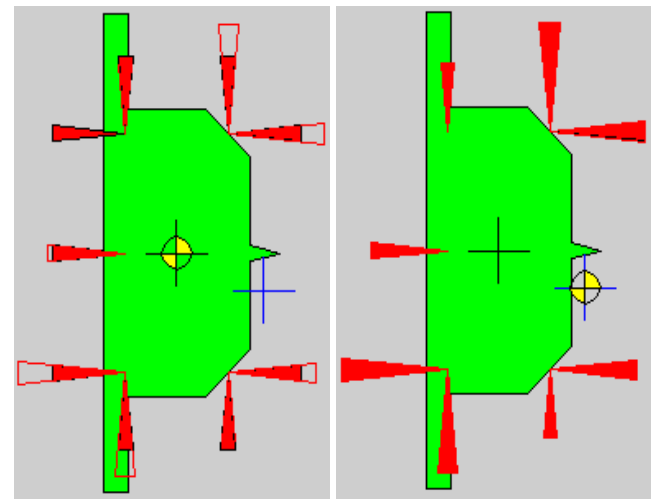
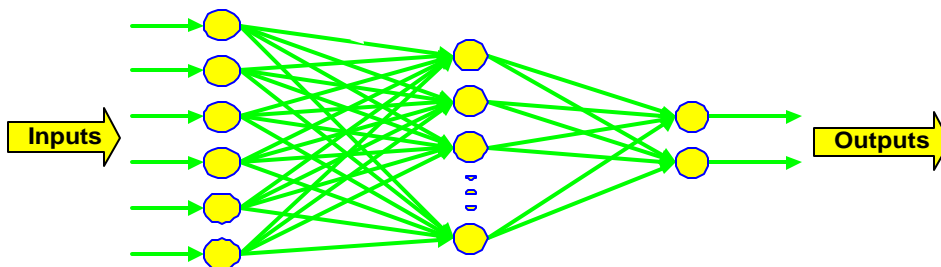
**3-D modeling
Software and
Telepresence**



Technology Development



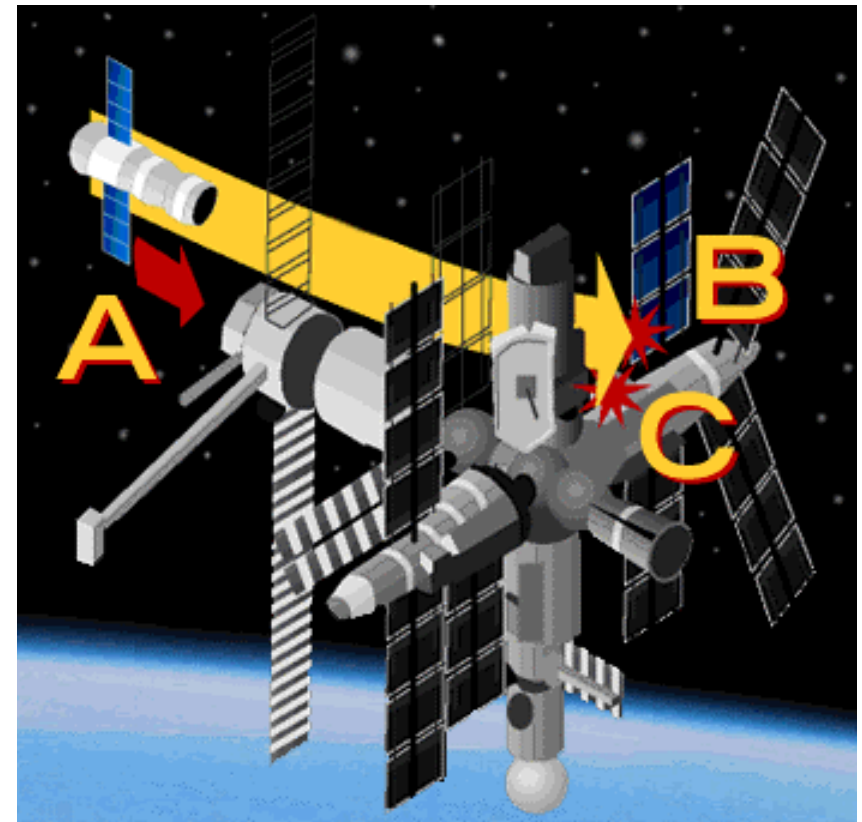
Space Station Software using Neural Networks for Students



Technology Development



Space Station Simulation Software using Haptics



School Data Base



64% COMPLETE with 10000 School Goal

Task	# of Schools	# of Teachers	# of Students
GRC	251	8793	5473
JPL	52	1300	25480
SSC	10	250	4900
GSFC	80	800	248000
KSC	90	2250	44100
MSFC	26	26	2275
LaRC	2850	607165	11859
ARC	300	7500	147000
JSC	652	769	255
America's Farm	5	125	2450
Eventscope	2	50	83
Luau II	1	25	490
SENSORS	1	25	490
Signals of Spring	30	750	750
Space Mysteries	1	25	490
Why Files	2	50	980
Project Office	2010	50250	984900
Totals	6363	680153	1479975



Awards



Awards



Legacy Projects

